Well Bits

Published for the Water Well & Pump Installation Industry by the Water Well & Pump Installation Standards Program, Nebraska Department of Health and Human Services

Vol. 1, Issue 1 Spring 2013

Welcome to the New "Well Bits" Electronic Edition

By Tom Christopherson-Manager Water Well Standards Program

We are pleased to announce that beginning with this edition, "Well Bits" will be available exclusively on-line. We are moving to the electronic format to provide an up-to-date newsletter that reduces printing and mailing costs therefore allowing the program to publish information in an ongoing type of magazine that will bring you closer to timely issues in the future.

The staff has nicknamed this inaugural issue the Earth, Wind, Flood, and Fire edition. As you read the articles you will see that our field offices cover the past 2 years with some of the challenges we have all faced related to Earth, Wind, Flood and Fire. Look for articles from other agencies in this and future editions that are important to the water well industry here in Nebraska as well.

In order to serve you in a timelier manner please be sure to subscribe to the Water Well Standards web page by going to http://dhhs.ne.gov/publichealth/Pages/enh_wwsindex.aspx and clicking on the icon:

Subscribe to this page.

Once you have subscribed, you will be notified by email of future postings the program posts on the web. Currently you can find information on CEU courses approved by the board along with board meeting dates and locations. You can find helpful tools such as:

- "Borehole Volume Calculator"
- Field Area Maps
- A copy of the award winning "Geothermal-energy From the Ground Up" video
- Informational Brochures
- Access to the statutes and regulations

And in the near future:

- Exam Study Guides (under construction)
- Frequently asked Questions Page (under construction)
- Comment to the Editor

If you have an interest in other state offices you can also subscribe to those web pages and you will be notified of updates as they are released. We know this will take some getting used to but I hope this will be a more efficient way to communicate with the water well contractors and ask you to provide feedback during this change.

THIS ISSUE

Underwater!

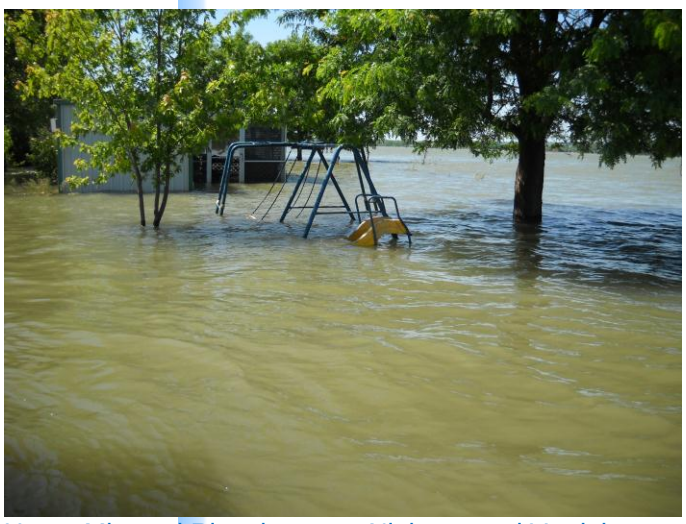
By Jerry Richling, Water Supply Specialist - Norfolk Office

The 2011 Missouri River Flood was a historical flooding event on the Missouri River. The flood was triggered by record snowfall in the Rocky Mountains and record rainfall in northwest Montana. The flood put every community on both sides of the river at risk. No one thought the water would get as high as it did, and when it did, it was devastating. The water covered farm ground miles inland and flooded houses, wells, and septic systems.

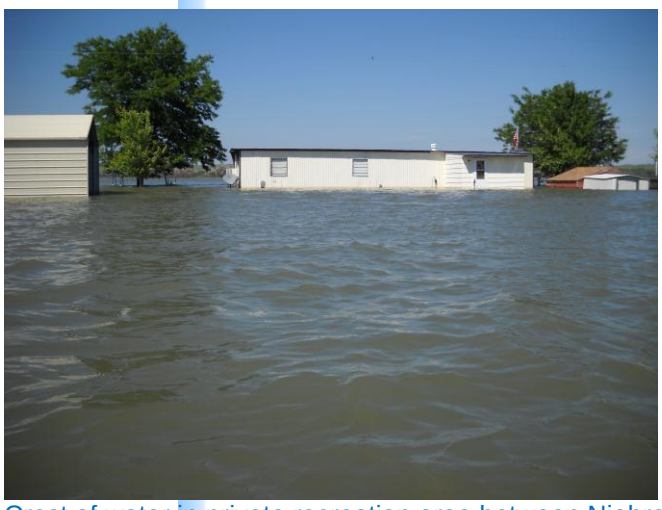
Our main concern was public safety and the quality of the ground water in the affected area. Prior to the rise of the river I was asked by the Department to visit the area of potential flooding to contact as many people as I could. My purpose was to instruct them on how they could seal their wells to protect the wells from flood waters. The two week venture started at Monowi and ended at Blair, Nebraska. I met a lot of people and they were all happy to receive my help.

After the flood, I compiled a list of all the people affected by flood waters and sent letters to them offering assistance from DHHS with a very good response. I told them the Water Well Standards Program was available to inspect their flooded wells and provide advice on what to do before using these wells. They were also advised on how to disinfect the well and how to obtain and use water sample kits. There were over 250 wells in the infected area.

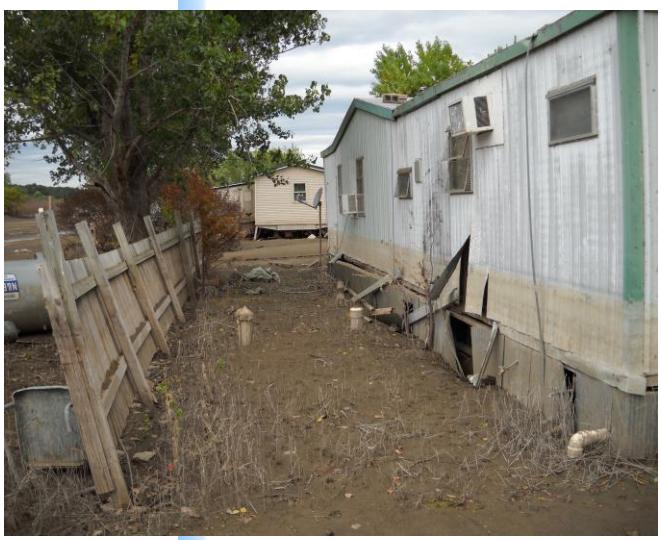
The photos to the right are some examples of the 2011 flooding event.



Upper Missouri River between Niobrara and Verdel, Nebraska.



Crest of water in private recreation area between Niobrara and Verdel, Nebraska.



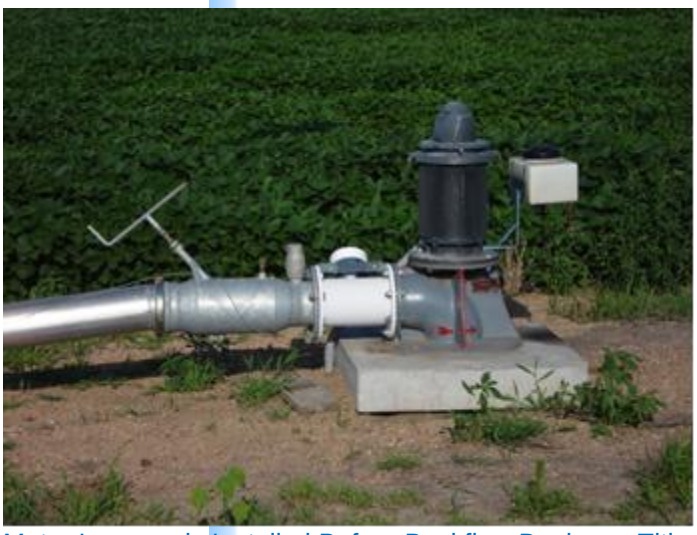
Water mark on trailer illustrates private well by fence was inundated by 2011 flood.

Common Violations to Avoid

By Dale Chandler, Water Supply Specialist - Grand Island Office

Most of the serious violations of standards I found during the past year occurred during inspections of water well and pump installation performed by home and/or landowners. In addition, I've included pictures of infractions by contractors that are major violations of Title 178 NAC 12. Some of the most serious infractions are the installation of the backflow device by pivot contractors. Remember that you must have a **license to install** the backflow device to the pitless or pump head. Title **178 NAC 12-0113.02D Backflow Protection:** The discharge piping from any pump and pumping equipment must be equipped with a backflow preventer. Such device must be designed to direct or isolate the water flow to prevent water in the distribution line from running back down the well during removal or repair to the pump and pumping equipment. Such device must be placed before any other device or branches in the distribution piping. In the instance of above ground discharge, such a device must be located within 1 foot of an above ground discharge head and prior to any other device.
12-011.02E Flow Meters: When a flow meter is installed on an irrigation pump system, the check valve must be placed in accordance with 178 NAC 12-011.02D. The meter must be located downstream from the backflow preventer and be placed in accordance with manufacturer spacing specifications.**12-011.02F Discharge Piping** includes any and all piping beginning at the discharge head or pitless unit tapping, extending to the first shut off valve or backflow preventer. When using above ground discharge, discharge piping must:

- Be protected against the entrance of contamination;
- For potable water use, be constructed of materials appropriate to each specific service;
- Be equipped with a backflow preventer, chemigation valve, or air gap;
- Be properly anchored to prevent movement; and
- Be protected against water hammer.



Meter Improperly Installed Before Backflow Devices - Title 178 NAC 12-011.02D

12-011.04B Submersible Pumps must comply with 178 NAC 12-011.02 and must be equipped in the following manner:

1. Secure Cover: Any water well which is being serviced or repaired must be capped with a secure cover during periods when the water well is left unattended.
2. Underground Discharge Piping must be equipped with a backflow preventer or an air gap and be in compliance with 178 NAC 12-011.02.
3. Above Ground Discharge piping must be equipped with a backflow preventer or an air gap and be in compliance with 178 NAC 12-011.02. For air gap protection, discharge piping must daylight above the high water line of any tank, pond, stream, or reservoir. Remember on livestock wells to have daylight above the rim of the stock tank.

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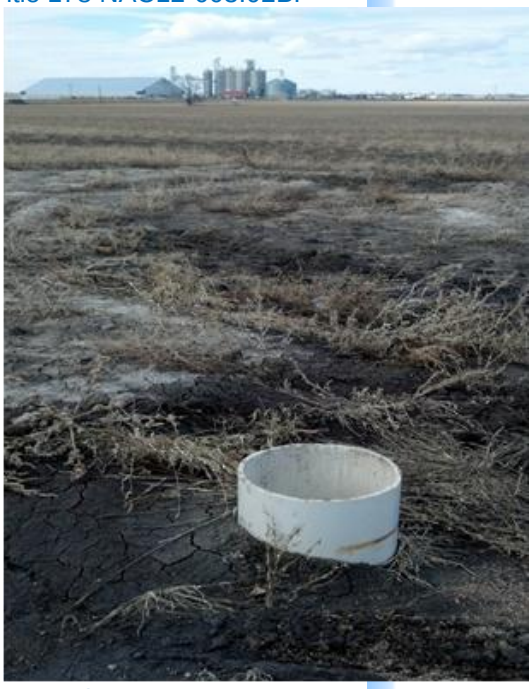
Two examples of improper well protection--
Title 178 NAC12-003.02B:



Example 1 – No Secure Cover

Title 178 NAC **12-003.02B Secure Cover** is also frequently violated, it states: **All water wells** must be capped with a **secure cover** when they are unattended. **All inactive water wells** must be capped with a **watertight secure cover.**

Example 2 – No Protection Against the Entrance of Contamination

Well Decommissioning Form Reminders

When completing a Notice of Water Well Decommissioning form, it's important to provide complete information. One item that is often overlooked on the form is 5b, Bore Hole Diameter. In order to ensure that the well has been properly decommissioned, it's necessary to know the size of the bore hole. Whether the well that is being decommissioned is registered or not, checking the bore hole size with a tape measure before starting the project lets you fill in Item 5b. Calculations can then be made to determine that the right amounts of the various decommissioning materials have been used. Properly and fully completing the decommissioning form keeps you from having to deal with a rejected form, and allows the Departments of Natural Resources and Health and Human Services know that our water supply is being protected. Thanks for all the work you do to keep our groundwater supply safe.

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Fire!!!

By Dave Sizer, Water Supply Specialist-
North Platte Office

Last summer's fires were caused by lightning and over 335,000 acres were burned in northwest Nebraska along with fences, buildings and equipment. The impact will long be felt, especially if the coming growing season is dry. Water well drillers in several areas helped fight the fires by donating time and personnel, and providing water trucks to supply needed water. When the contractor's livelihood depends on the well-being of his customer's operations, it only makes good sense to help out.

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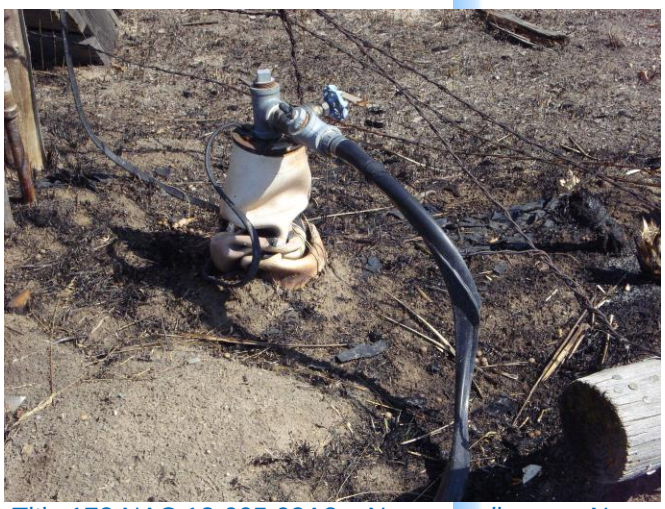

Title 178 NAC 12-005.02A2 – Non-compliance – No Concrete Pad

Title 178 NAC 12-005.02A2 – Compliance – Sufficient Concrete Pad

After such devastating fires, fences need to be rebuilt and water systems need to be restored. In some of the areas burned, the power lines were destroyed and windmill tower anchor posts were burned. The damage to wells exposed to the fires varied greatly. Some had melted PVC casing. Most had electrical wiring damaged both at the control box and disconnect and on some even inside the pitless adapter covers. Piping away from the wells was often also damaged. One was found where the fire had been hot enough to melt the cast metal pitless adapter cover.

Title 178 NAC 12-003.01B – Non-compliance – Well in a Pit

It looks like we may have another dry year. Driving in dry grassy areas with vehicles with catalytic converters is not advisable. Not only can you start a grass fire but you may also find your vehicle torched. Catalytic converters run hot enough to ignite almost any dry foliage allowed to touch them for a few seconds. Water Well Standards inspectors are aware of the danger and the potential liability arising from starting a wild fire and they try to avoid driving or parking in such areas.

Title 178 NAC 12-003.08B – Compliance – Well in a Pump House Mounted on a Concrete Platform

New System Design

By Dale Chandler, Water Supply Specialist - Grand Island Office

Title 178 NAC 12-011.02B New System Design: When designing and installing a new water supply system, all national and state codes and laws must be taken into consideration. The system must be installed according to the manufacturer's specifications.

12-011.02C Repair or Modifications to Pumps and Pumping Equipment: Upon the removal of, or the repair and/or modification to the pump or pumping equipment in which replacement of **original equipment** is required, current pump and pumping equipment installation standards must be followed. This includes **replacement of**, **or modification to** the electrical wiring and/or controls located in the electrical layout serving the pump and pumping equipment including connection to the load side of the service disconnect or breaker. **Any upgrade of this electrical system** must be in compliance with all current applicable state or national electrical codes, and be installed according to the manufacturer's specifications**.**

All Solar Photovoltaic Systems must follow NEC Article 690

All systems must be properly grounded to prevent electrocution of humans or animals.

Title 178 NAC12-011.02H Major Violation-No Concrete Pad

Title 178 NAC12–011.02H Major Violations – No Well Seal – Unprotected Electrical Wiring

State Electrical Act & State Electrical Board rules 81-2121 Act; not applicable to certain situations; enumerated.

Nothing in the State Electrical Act shall be construed to:

(7) Prohibit a pump installation contractor or pump installation supervisor credentialed under the Water Well Standards and Contractors' Practice Act from wiring pumps and pumping equipment at a water well location to the first control.

You can download the Electrical Act by going to:

http://www.electrical.nebraska.gov/pdf/state_electrical_act.pdf

Separation Distances

By Tracy Zayac, Natural Resources Program Specialist Department of Natural Resources

The provisions of Neb. Rev. Stat. §§ 46-609 and 46-651 prescribe the required distances that certain kinds of water wells under different ownership must be from each other. Apart from specifically-listed exceptions, Neb. Rev. Stat. § 46-609(1) states that irrigation wells under

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different ownership must be constructed at least 600 feet away from each other. Neb. Rev. Stat. § 46-651(1) increases that distance requirement to 1,000 feet for each of the following cases: a) a public water supply well and another public water supply well, an irrigation well, or an industrial well; b) an industrial well and another industrial well, an irrigation well, or a public water supply well; and c) an irrigation well and an industrial well or a public water supply well. Anyone who wishes to construct a water well of one of the above types at less than the statutorily-prescribed distance from another well of one of the above types must obtain a special permit from the Department of Natural Resources (Department) prior to well construction.

Many times, the spacing between an existing water well and a proposed water well location is checked when someone applies for a water well construction permit from the local natural resources district (NRD). Any potential well spacing conflict between an existing well and a proposed well site can then be addressed prior to well construction. Pursuant to Neb. Rev. Stat. § 46-735(1)(b), however, a water well construction permit is not required for a single water well designed and constructed to pump fifty (50) gallons per minute **or less**, unless specifically prescribed by NRD rules. Because a construction permit is not needed in these cases, the NRD does not perform that initial check for spacing and may not necessarily be aware that a new well is being, or has been, constructed. In any case, the primary responsibility for physically verifying that the location of a planned well does not conflict with statutory spacing requirements falls on the drilling contractor. Even when the NRD does check for well spacing when examining a construction permit application, the NRD's assessment of spacing can be only as good as the location information available to the NRD. For example, an existing well may be mapped in the wrong location, because the Department's registered wells database or the NRD's own records show incorrect location information. The cause could be incorrect information error(s) within the original document that was filed with the Department, or it could be due to a typographical error, depending upon what source of information was used. Consequently, the drilling contractor should always conduct an on-the-ground check for potential statutory well-spacing conflicts before beginning construction on an irrigation, public water supply, or industrial well, regardless of the planned capacity of that well.

Documentary on Geothermal Energy Honored

LINCOLN, Neb. (March 14, 2013) -- The American Clean Skies Foundation awarded a second place energy visions prize to "Geothermal: Energy from the Ground Up" in the long form feature film or documentary category. This Nebraska documentary features efficient geothermal technology (underground pipes installed with a heat pump to keep buildings cool in the summer and warm in the winter) and was co-produced by NET Public Media, the Nebraska Well Drillers Association and the Nebraska Department of Health and Human Services, Division of Public Health.

Jody Millard of NET produced the documentary with Tom Christopherson of the Nebraska Department of Health and Human Services and Lee Orton of the Nebraska Well Drillers Association. NET's Nick Kumpula served as editor and Stephanie June served as narrator. Videographers on the project included Dan Smith and John Beck.

The $20,000 prize will be used in Nebraska for future training to harness geothermal energy, according to Christopherson. "We had a really great crew at NET, along with our homeowners and contractors, and we were pleased to be able to get this geothermal information out to Nebraska citizens," Christopherson said.

"The success of this film project resulted from the outstanding partnership between NET, the Department of Health, through the Water Well Contractors Licensing Board and the Well Drillers Association," said Orton who attended the

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awards ceremony in Washington, DC February 28. "Our project has benefitted from airing on NET2 World as well as the extensive use of the video by members of the water well industry and others to educate professional heating and cooling contractors and consumers," he added.

NET Public Media provides services to Nebraska's non-profit, educational, governmental and community service groups. "Geothermal: Energy from the Ground Up" will air on NET2 World Thursday, April 4, at 8:30 p.m. CT and on Sunday, April 7, at 2:30 p.m. CT.

According to the American Clean Skies Foundation, the prizes were awarded for works that advanced a vision for America's energy security and a cleaner, low-carbon environment. To learn more about this prize, visit www.energyvisionsprize.org.

CONTACT: Mary Jane Winquest at 402.470.6247 or mjwinquest@netNebraska.org.

NET Television:
NET2 World offers live coverage of the Nebraska Unicameral, and other news and public affairs programming.

Department of Health & Human Services
DHHS
NEBRASKA

Board Meeting Dates for 2013

All Board meetings are open to the public and everyone is welcome to attend.

June 14, 2013	TBA
August 28, 2013	NSOB - Lincoln
November 20, 2013	NSOB - Lincoln

2013 Licensure Examinations

Exams that will be held in Grand Island, Lincoln, Norfolk, North Platte, and Scottsbluff, Nebraska:
May 1, 2013
August 7, 2013
November 6, 2013

CEU Hours Earned:
http://dhhs.ne.gov/publichealth/Pages/lis_lisindex.aspx

Water Well Standards Program:

http://dhhs.ne.gov/publichealth/Pages/enh_wwsindex.aspx

Approved Continuing Education Programs & Upcoming Continuing Education Classes:
(Updated with new approvals following each Board meeting):
http://dhhs.ne.gov/publichealth/Documents/ApprovedCE2013.pdf

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Well Bits is published by the Water Well Standards Program of the Nebraska Department of Health and Human Services, Division of Public Health. The goal of Well Bits is to inform licensed contractors of news and information related to the industry. Suggestions for articles are appreciated; however, we reserve the right to decide whether an item is appropriate for publication. Send your ideas, questions, and comments to: Well Bits, Water Well Standards, PO Box 95026, Lincoln, NE 68509-5026.